

Work Order ID 151511

151511

Page 1

Tuesday, September 27, 2016 11:54:54 AM

Item ID: D2933-1 Accept *N900040100* Setup Start *NS1*
Revision ID: Stop *NS2*
Item Name: Saddle LH In, 206
Start Date: 9/13/2016 Start Qty: 4.00 *4* Cust Item ID:
Required Date: 9/27/2016 Req'd Qty: 4.00 *4* Customer:
Reference:

Approvals: Process Plan: DAS 21 Date: SEP 28 2016 Tooling: Date: Run Start *NR1*
QC: 9-89 Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D2933	Rev C

100

100

HAAS 1

HAAS CNC vertical machine #1

HAAS CNC VERTICAL MACHINING #1

Memo

Program part number and batch number.1-Inspect part number and batch number are programmed correctly.2-Machine Step No 1 of Folio and visually inspect as per dwg D2933 & attached Dimension Sheet 3-Machine Step No 2 of Folio and visually inspect as per

0.04

0.51

D.A 16-11-16

4

φ

DAS
08
9-29

110

110

Mill Conv

Conventional Milling Machine

CONVENTIONAL MILLING MACHINE

Memo

Machine Keyway and inspect per attached dimension sheet

0.00

0.06

D.A 16-11-16

4

φ

DAS
08
9-29

120

120

QC

Quality Control

QC2 / QC1- Inspection performed by CMM

Memo

Inspect on CMM as per folio CMMA020.

DWG REV: _____

CMM PROG. REV: _____

0.00

0.00

D.A 16-11-16

4

φ

DAS
08
9-29

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐							
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval			
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval			
Root Cause		FAULT CATEGORY									
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :									
Misidentified ☐	Past Due ☐										

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Page 2

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Required Date: 9/27/2016 Req'd Qty: 4.00 ***4*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 *130* QC Quality Control	QC8- Inspect parts - second check Memo	0.00 0.01				4	0		DAS 14 9-89 ml 10/11/18
140 *140* HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1 Memo	0.00 0.10				(x4)	0		2016/11/21 BEB
150 *150* Powdercoat Powder Coating	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum m 134798 Memo START TIME: 1:15 320° FINISH TIME: 1:45	0.00 0.01				4	0	16-11-22	DAS 34 9-89

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
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Misidentified ☐	Past Due ☐																																																																

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Page 3

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Required Date: 9/27/2016 Req'd Qty: 4.00 ***4*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	QC3- Inspect Part Finish	0.00							
160						4			DAS 38 9-89
QC	Memo	0.01							NOV 22 2016
Quality Control									
170	Identify as per dwg & Stock Location: ST396	0.00							
170						4x			NOV 23 2016
Packaging	Memo	0.01							DAS 26 9-89
Packaging									
180	QC21- Final Inspection - Work Order Release	0.00							
180									16/11/24
QC	Memo	0.07							
Quality Control									DAS 21 9-89

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
				Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
				Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
				Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
				Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
				Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
				Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
				Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
				OTHER : _____			

Picklist Print

Tuesday, September 27, 2016 11:54:53 AM

Page 1

Work Order ID: 151511

151511

Parent Item: D2933-1

D2933-1

Parent Item Name: Saddle LH In, 206

Start Date: 9/13/2016

Required Date: 9/27/2016

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP: B00.06.26New DWG rev (mpp 2069)EC
IPP Rev:C As per Rev C 07-03-19 JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6101-001		Manufactured	No			100	Each	35.0000	1	4			
D6101-001									**				
Saddle Billet													

D. 16-11-16

Location

Loc Qty

Loc Code

MAT042

35

145262

6

→ 147677

9

→ 150689

20

1.0

3.0

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date : _____	Step #: _____	QTY Effective : _____		MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation		Disposition			

Root Cause	Pressure/Forced	Temperature/Cure	Power Loss/Surge	Positioned Wrong
Environment ☐	☐	☐	☐	☐
Design ☐	☐	☐	☐	☐
Doc/Data ☐	☐	☐	☐	☐
Equip/Tooling ☐	☐	☐	☐	☐
Handling/Pre ☐	☐	☐	☐	☐
Material ☐	☐	☐	☐	☐
Internal Transport ☐	☐	☐	☐	☐
Tribal Knowledge ☐	☐	☐	☐	☐
LOA ☐	☐	☐	☐	☐
Substation ☐	☐	☐	☐	☐
Past Expiry Date ☐	☐	☐	☐	☐
Misidentified ☐	☐	☐	☐	☐
No Re-verification ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Operator ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Offset/Setup ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Supplier ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Training ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Use for Testing ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Poor Information ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
Rushing ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Product Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Process Improvement ☐	OTHER : _____			
Manufacturing Process ☐				
Past Due ☐				

DART AEROSPACE LTD		Work Order: 151511
Description: 206 Saddle, Inboard, Left side		Part Number: D2933-1
Inspection Dwg: D2933 Rev: C DSK: Rev:		Page 1 of 1

FIRST ARTICLE INSPECTION DIMENSION SHEET

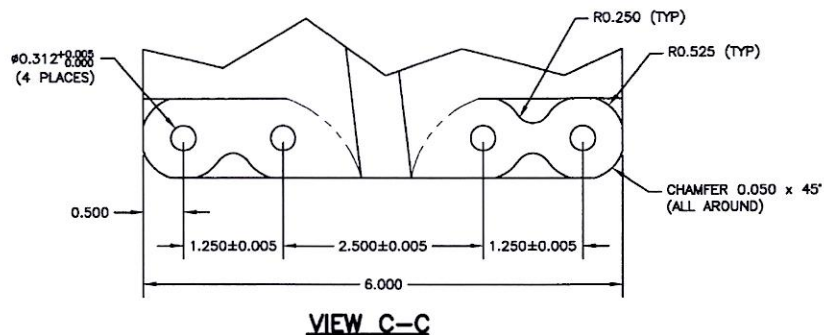
☒ First Article
 ☐ Prototype

Dim	Min	Max	Go/No Go Gauge	Record Actual Dimensions				
				1	2	3	4	5
A	0.100	0.140		0.125	0.125	0.125	0.125	
B	0.100	0.140		0.122	0.121	0.121	0.120	
C	0.100	0.140		0.108	0.108	0.109	0.107	
D	0.210	0.230		0.227	0.227	0.227	0.229	
E	1.245	1.255		1.250	1.250	1.250	1.250	
F	1.245	1.255		1.250	1.250	1.250	1.250	
G	2.495	2.505		2.500	2.500	2.500	2.500	
H	0.510	0.515		0.513	0.513	0.513	0.513	
I	1.572	1.582		1.577	1.577	1.577	1.577	
J	2.495	2.505		2.500	2.500	2.500	2.500	
K	0.257	0.262		0.258	0.258	0.258	0.258	
L	0.312	0.317		0.314	0.314	0.314	0.314	
M	0.235	0.240		0.235	0.235	0.235	0.236	
N	0.100	0.140		0.120	0.120	0.120	0.120	
O	0.540	0.560		0.548	0.548	0.548	0.548	
P	0.490	0.510		0.500	0.500	0.498	0.500	
Q	3.715	3.725		3.720	3.720	3.720	3.720	
R	2.470	2.510		2.490	2.490	2.490	2.490	
S	0.240	0.270		0.259	0.259	0.258	0.258	
T	0.100	0.180		0.125	0.125	0.125	0.125	
U	1.625	1.635		1.630	1.630	1.630	1.630	
V	1.362	1.372		1.367	1.367	1.367	1.367	
W	0.316	0.321		0.316	0.316	0.316	0.316	
X	1.125	1.145		1.135	1.135	1.135	1.135	
Y	1.565	1.585		1.575	1.575	1.575	1.575	
Z	0.178	0.198		0.188	0.188	0.188	0.188	
AA								
AB								
AC								
AD								
AE								

Accept/Reject

Measured by: D.A.	Date: 16-11-16
Audited by: [Signature]	Date: 16/11/18
Prototype Approval: N/A	Date: N/A

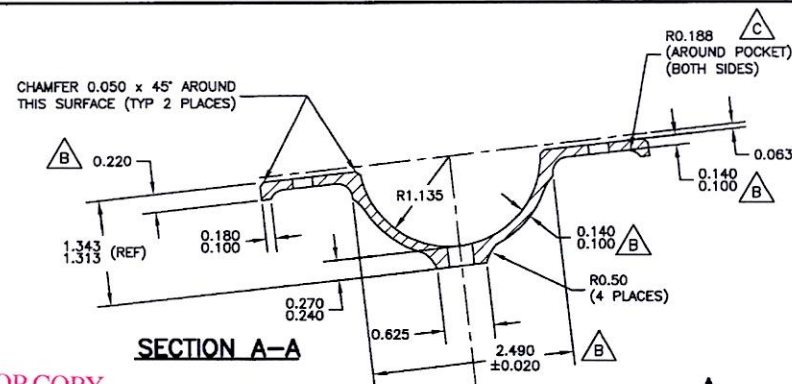
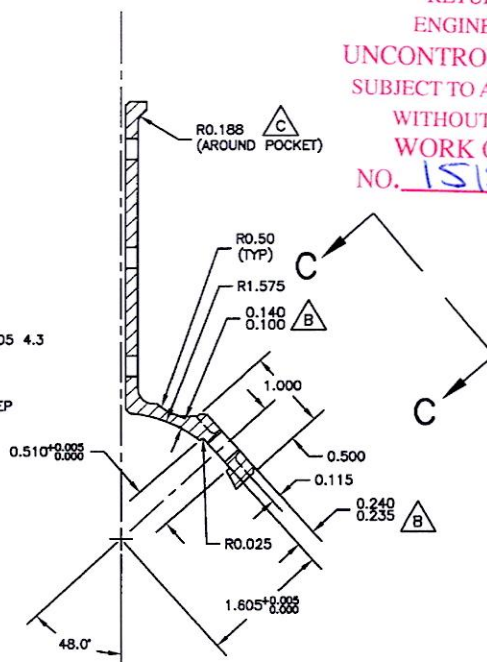
Rev	Date	Change	Revised by	Approved
A		New Issue	RF	
B	02.12.12	Re-format; Added Dim. X-Y, DT8683, DT8686, DT8690 & DT8695 A/B	KJ/RF	
C	06.10.03	Removed DT8683, DT8686 & DT8690	KJ/JLM	
D	07.03.21	Revised per drawing revision C	KJ/JLM	
E	08.01.16	DT8695 A/B removed from dimension Y	KJ/EC/DD	



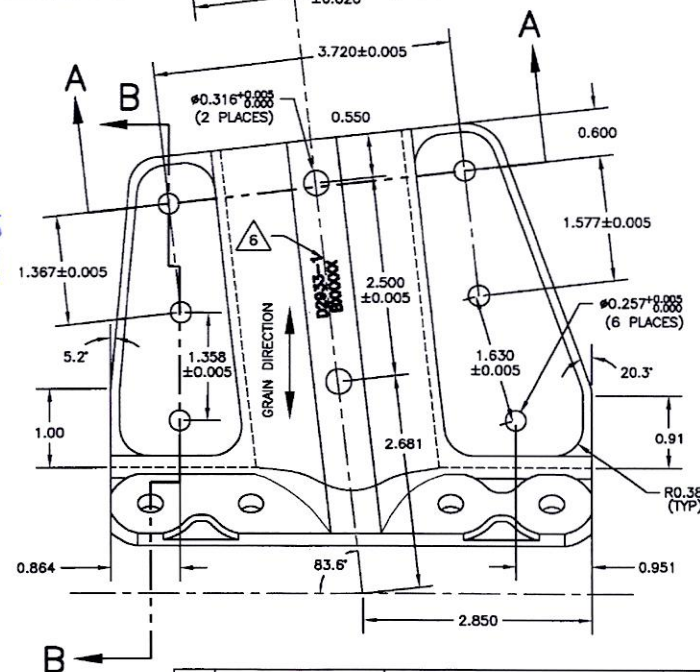
D2933-1 LH SADDLE (SHOWN)
D2933-2 RH SADDLE (OPPOSITE)

NOTES:

- 1) MATERIAL: ALUMINUM 7075-T7351 (QQ-A-250/12)
(MAKE FROM D6101-001 SADDLE BILLET, 7075)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT GLOSS WHITE (REF 4.3.5.1) PER DART QSI 005 4.3
- 3) BREAK ALL SHARP EDGES 0.010 TO 0.020
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 5) ALL DIMENSIONS ARE IN INCHES
- 6) ENGRAVE PART AND BATCH NUMBER IN THIS AREA 0.010 TO 0.015 DEEP



SHOP COPY
 RETURN TO
 ENGINEERING
 UNCONTROLLED COPY
 SUBJECT TO AMENDMENT
 WITHOUT NOTICE
 WORK ORDER
 NO. 151511 MJS
 1609-28

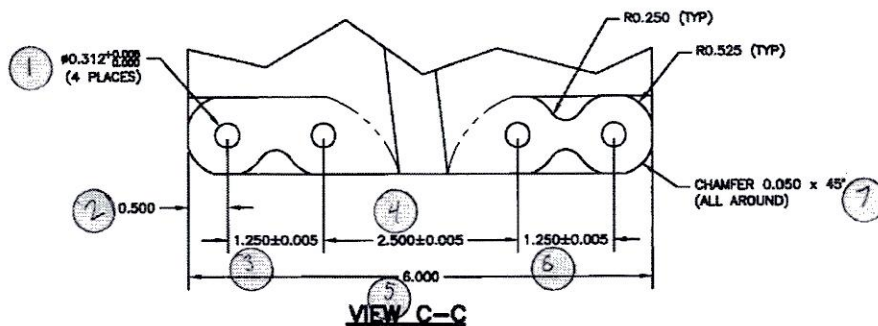


C	06.11.09	R0.188 WAS R0.30 TO R0.25
B	00.05.29	CHANGED GEOMETRY AND MATERIAL
A	99.10.29	NEW ISSUE
DESIGN	4	DRAWN BY CB
CHECKED	PH	APPROVED
DATE	06.11.09	TITLE SADDLE INSIDE
DRAWING NO. D2933		REV. C SHEET 1 OF 1
DART AEROSPACE USA, INC.		2-3

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DART DART AEROSPACE USA, INC.
 BELLEVUE, WA

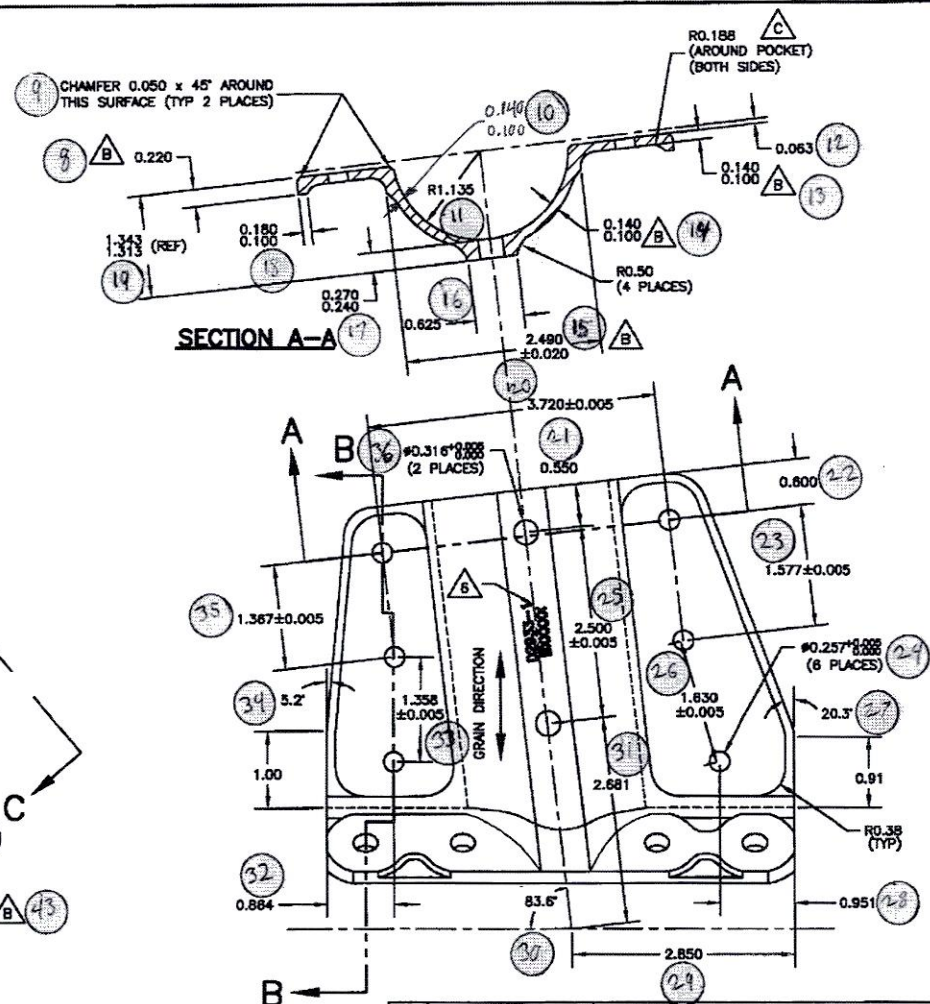
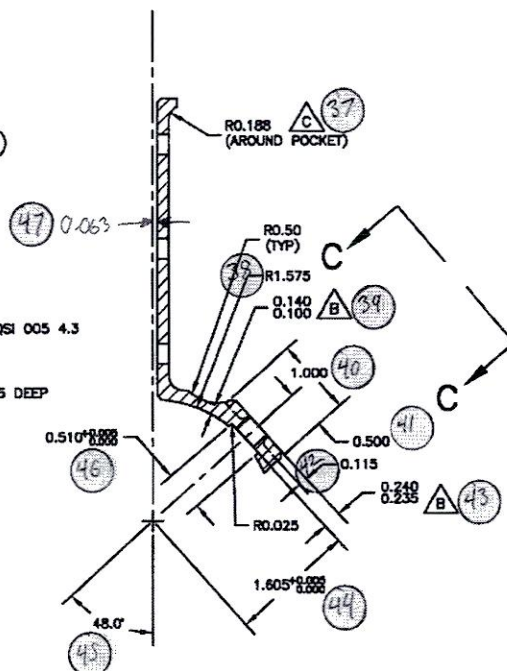


D2933-1 LH SADDLE (SHOWN)

~~D2933-2 RH SADDLE (OPPOSITE)~~

NOTES

- 1) MATERIAL: ALUMINUM 7075-T7351 (00-A-250/12)
(MAKE FROM D8101-001 SADDLE BILLET, 7075)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT GLOSS WHITE (REF 4.3.3.1) PER DART QSI 005 4.3
- 3) BREAK ALL SHARP EDGES 0.010 TO 0.020
- 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 5) ALL DIMENSIONS ARE IN INCHES
- 6) ENGRAVE PART AND BATCH NUMBER IN THIS AREA 0.010 TO 0.015 DEEP



C	06.11.09	R0.188 WAS R0.30 TO R0.25
B	00.05.29	CHANGED GEOMETRY AND MATERIAL
A	99.10.29	NEW ISSUE
DESIGN	4	DRAWN BY CB
CHECKED	PH	APPROVED
DATE	06.11.09	TITLE
		SADDLE INSIDE

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DART DART AEROSPACE USA, INC.
MILLERS, VA

DRAWING NO. D2933

REV. C

SHEET 1 OF 1

SCALE

2:3

RELEASED

07-02-12